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**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA**

NEUROGRAFIX, a California corporation;  
WASHINGTON RESEARCH  
FOUNDATION, a not-for-profit Washington  
corporation,

Plaintiffs,

vs.

SIEMENS MEDICAL SOLUTIONS USA,  
INC., a Delaware corporation; and  
SIEMENS AKTIENGESELLSCHAFT, a  
German corporation,

Defendants.

CASE NO. CV 10-1990 MRP(RZX)

**MEMORANDUM IN SUPPORT  
OF SIEMENS' MOTION FOR  
PARTIAL SUMMARY  
JUDGMENT OF INVALIDITY  
REGARDING CLAIMS 3-5, 36,  
37, 39-44, 46, 47, 49, 50, 55, 56, 58,  
59, 61, AND 62 IN U.S. PATENT  
NO. 5,560,360 IN LIGHT OF  
CLAIM CONSTRUCTION  
ORDER**

**The Hon. Mariana R. Pfaelzer  
United States District Court Judge**

**Hearing Date: TBD  
Time: TBD  
Location: Courtroom 12**

1  
2 SIEMENS MEDICAL SOLUTIONS USA,  
3 INC.

4 Counterclaim Plaintiff,

5 vs.

6 NEUROGRAFIX, and WASHINGTON  
7 RESEARCH FOUNDATION,

8 Counterclaim Defendants.  
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## TABLE OF CONTENTS

|      |  |    |
|------|--|----|
| I.   | BACKGROUND .....   | 2  |
| A.   | Status of the Litigation .....   | 2  |
| B.   | Relevant Technological Background for Claims 3, 4, and 5 .....   | 3  |
| C.   | The Hajnal Prior Art.....  | 4  |
| II.  | APPLICABLE LEGAL PRINCIPLES .....  | 5  |
| A.   | Invalidity for Anticipation by Prior Art Reference.....  | 5  |
| B.   | Invalidity for Indefiniteness .....  | 6  |
| III. | ARGUMENT.....  | 7  |
| A.   | Claims 3, 4, and 5 Are Anticipated by Hajnal .....   | 7  |
| 1.   | Hajnal discloses step (a) of claim 3 .....   | 7  |
| 2.   | Hajnal discloses step (b) of claim 3 .....   | 9  |
| 3.   | Hajnal discloses step (c) of claim 3 .....   | 10 |
| 4.   | Hajnal discloses step (d) of claim 3 .....   | 11 |
| 5.   | Hajnal discloses step (e) of claim 3 .....   | 13 |
| 6.   | Hajnal discloses the step recited in claim 4 .....   | 14 |
| 7.   | Hajnal discloses the step recited in claim 5 .....   | 15 |
| B.   | Asserted Claims 36, 37, 39-44, 46, 47, 49, 50, 55, 56, 58, 59, 61,<br>and 62 Are Indefinite and Therefore Invalid as a Matter of Law .....       | 15 |
| 1.   | Partial Summary Judgment of Invalidity Should be Granted<br>for Claims the Court Already Found Indefinite.....                                   | 15 |
| 2.   | Partial Summary Judgment of Invalidity Should Also be<br>Granted for Claims that Depend on the Claims the Court<br>Already Found Indefinite..... | 16 |
| IV.  | CONCLUSION.....  | 17 |

## TABLE OF AUTHORITIES

### Cases

|   |           |
|---|-----------|
| <i>Absolute Software, Inc. v. Stealth Signal, Inc.</i> ,<br>2008 WL 6745389 (S.D. Tex. Feb. 8, 2008) .....                | 7         |
| <i>Advanced Tech. Materials, Inc. v. Praxair, Inc.</i> ,<br>228 F. App'x 983 (Fed. Cir. 2007) .....                       | 6         |
| <i>Blackboard, Inc. v. Desire2Learn, Inc.</i> ,<br>574 F.3d 1371 (Fed. Cir. 2009) .....                                   | 6, 15, 16 |
| <i>C.R. Bard, Inc. v. M3 Sys., Inc.</i> ,<br>157 F.3d 1340 (Fed. Cir. 1998) .....   | 5         |
| <i>Convolve, Inc. v. Dell, Inc.</i> ,<br>2011 WL 31792 (E.D. Tex. Jan. 5, 2011).....                                      | 6         |
| <i>Golden Bridge Tech., Inc. v. Nokia, Inc.</i> ,<br>527 F.3d 1318 (Fed. Cir. 2008) .....                                 | 5         |
| <i>Grantley Patent Holdings, Ltd. v. Clear Channel Commc'ns, Inc.</i> ,<br>2008 WL 5781056 (E.D. Tex. Mar. 7, 2008) ..... | 16        |
| <i>In re Reuning</i> ,<br>276 F. App'x 983 (Fed. Cir. 2008) .....   | 14        |
| <i>Leggett &amp; Platt, Inc. v. VUTEk, Inc.</i> ,<br>537 F.3d 1349 (Fed. Cir. 2008) .....                                 | 5         |
| <i>Planet Bingo, LLC v. GameTech Int'l, Inc.</i> ,<br>472 F.3d 1338 (Fed. Cir. 2006) .....                                | 5, 7      |
| <i>Schering Corp. v. Geneva Pharm.</i> ,<br>339 F.3d 1373 (Fed. Cir. 2003) .....  | 5         |
| <i>SmithKline Beecham Corp. v. Apotex Corp.</i> ,<br>403 F.3d 1331 (Fed. Cir. 2005) .....                                 | 5         |
| <i>Union Carbide Corp. v. Am. Can Co.</i> ,<br>724 F.2d 1567 (Fed. Cir. 1984) .....                                       | 6         |

**Statutes**

|                          |              |
|--------------------------|--------------|
| 35 U.S.C. §112, ¶2 ..... | 2, 7, 16, 17 |
| 35 U.S.C. §112, ¶4 ..... | 7            |
| 35 U.S.C. §112, ¶6 ..... | 6            |

**EXHIBIT LIST**

The following exhibits cited herein refer to the exhibits to the Declaration of Sean M. McEldowney In Support of Siemens' Notice of Motion and Motion for Partial Summary Judgment of Invalidity Regarding Claims 3-5, 36, 37, 39-44, 46, 47, 49, 50, 55, 56, 58, 59, 61, and 62 in U.S. Patent No. 5,560,360 in Light of Claim Construction Order, filed concurrently herewith. References to the File History for U.S. Patent No. 5,560,360 are cited as "JA\_\_" and refer to the parties Joint Appendix submitted on February 11, 2011 (D.I. 102).

**Exhibit 1:** J.V. Hajnal, et al., *MR Imaging of Anisotropically Restricted Diffusion of Water in the Nervous System: Technical, Anatomic, and Pathologic Considerations*, 15 J. Computer Assisted Tomography 1 (1991); SMSSAG0000208-225

**Exhibit 2:** Letter from Andrew D. Weiss to Sean M. McEldowney, dated May 18, 2011

**Exhibit 3:** Email from Andrew D. Weiss to Sean M. McEldowney, dated May 24, 2011

**Exhibit 4:** U.S. Patent No. 5,560,360; NEURO00007123-173

**Exhibit 5:** Excerpts of *Taber's Cyclopedic Medical Dictionary* (1993); SMSSAG0051244-266

**Exhibit 6:** Excerpts from Plaintiff Neurografix's Disclosure of Asserted Claims and Infringement Contentions, dated November 10, 2010

**Exhibit 7:** Excerpts from the deposition of Aaron G. Filler, M.D., dated February 22, 2011

**Exhibit 8:** Excerpts from the expert report of Aaron G. Miller, M.D., dated January 24, 2011

**Exhibit 9:** Letter from Sean M. McEldowney to Andrew D. Weiss, dated May 12, 2011

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## MEMORANDUM OF POINTS AND AUTHORITIES

Siemens' claim construction briefing raised critical questions about the scope and patentability of the claims of U.S. Patent No. 5,560,360 ("the '360 patent"). (D.I. 108 at 1.) NeuroGrafix avoided those questions during claim construction, and now wishes for the Court to ignore the unavoidable legal effect of the Court's claim construction order: Many of the asserted claims are invalid. Siemens requests that the Court grant partial summary judgment of invalidity dismissing several of the asserted claims in light of its claim construction order and the positions NeuroGrafix took during the Markman process. Partial summary judgment will allow discovery and expert reports to be properly focused and to proceed only as legitimately needed on any remaining claims.

This motion seeks partial summary judgment of invalidity concerning two issues. First, the Court's claim construction and the patentee's own prior representations render claims 3, 4, and 5 invalid as anticipated by the Hajnal prior art journal article ("Hajnal").<sup>1</sup> To be sure, Siemens contends (and may later move for summary judgment) that Hajnal and several other prior art references invalidate all of the claims in the '360 patent. Claims 3, 4, and 5, however, are ripe for invalidation, based solely on the Court's construction of the term "cranial nerve" and the patentee's admissions to the Patent Office regarding Hajnal during prosecution of the '360 patent. Independent claims 1, 7, 11, 12, and 18 each contain several steps that are identical to the steps of claim 3, and addressing claim 3 now will allow the parties to focus discovery and expert reports on remaining, allegedly-novel steps in those claims that may warrant further discovery.

Second, Siemens requests the Court enter partial summary judgment of invalidity on the means- and step-plus-function claims the Court's claim construction

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<sup>1</sup> Ex. 1, J. V. Hajnal, et al., *MR Imaging of Anisotropically Restricted Diffusion of Water in the Nervous System*, 15 J. Computer Assisted Tomography 1 (Jan./Feb. 1991).

1 order already found indefinite as lacking a corresponding “processing” algorithm in  
2 the patent (claims 36, 39, 46, 49, 55, 58, and 61) and on the claims that depend on  
3 those indefinite claims (claims 37, 40-44, 47, 50, 56, 59, and 62). NeuroGrafix’s only  
4 dispute with entering partial summary judgment on all of these claims appears to be  
5 NeuroGrafix’s disagreement with the Court’s claim construction on the method claims  
6 in this group.<sup>2</sup> But more than 10 weeks after the Court’s claim construction order,  
7 NeuroGrafix has neither filed, nor expressed any plausible basis for filing, a motion  
8 for reconsideration. NeuroGrafix’s displeasure with the Court’s ruling and its desire  
9 to rehash arguments it made in its briefs and at the lengthy Markman hearing is no  
10 basis to avoid partial summary judgment. The Court’s claim construction order  
11 renders these claims invalid as a matter of law, and there is no reason to delay partial  
12 summary dismissal of these claims.

## 13 **I. BACKGROUND**

### 14 **A. Status of the Litigation**

15 NeuroGrafix served its infringement contentions on November 30, 2010  
16 alleging infringement of 41 claims of U.S. Patent No. 5,560,360 (“the ‘360 patent”).  
17 On May 5, 2011, after extensive briefing and a lengthy hearing on claim construction,  
18 the Court entered its claim construction order, rendering several claims indefinite  
19 under 35 U.S.C. §112, ¶2. (D.I. 114.) Pursuant to the Court’s June 10, 2011  
20 scheduling order (D.I. 118.), this memorandum addresses certain invalidity issues  
21 Siemens contends should be resolved as a matter of law without the need for expert  
22 testimony or further discovery.

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24  
25 <sup>2</sup> NeuroGrafix does not oppose summary judgment of invalidity for the apparatus  
26 claims in this group (i.e., apparatus claims 55, 56, 58, 59, 61, and 62). (Ex. 2, 5/18/11  
27 Weiss to McEldowney letter.) NeuroGrafix’s only proffered reason for refusing to  
28 stipulate to summary judgment of invalidity on claims 36, 37, 39-44, 47, and 50 is that  
NeuroGrafix would like to ask the Court to reconsider its claim construction order.  
(*Id.*; see also Ex. 3, 5/24/11 Weiss to McEldowney email.)



**B. Relevant Technological Background for Claims 3, 4, and 5**

As discussed in more detail in the parties' claim construction briefs, magnetic resonance imaging ("MRI") was developed in the 1970s and it includes the following steps:

- (a) exposing a patient to a magnetic polarizing field;
- (b) exposing the patient to an electromagnetic excitation field;
- (c) sensing a response from the nuclei inside the patient's tissue and producing an output representing that response;
- (d) controlling the performance of those steps by setting various parameters; and
- (e) processing the output to generate an image (or other data set).

(See, e.g., D.I. 106 at 2-5; D.I. 103-4 at 11-17.) The parameters of those steps (e.g., the strength of the magnetic field, the timing of electromagnetic pulses, etc.) are largely controlled in step (d) by what is referred to as a "pulse sequence." The '360 patent describes many prior art pulse sequences and methods, including, for example, fat suppression, vessel suppression, and T2-weighted sequences.<sup>3</sup>

Claims 3, 4, and 5 relate to using T2-weighted methods for imaging certain types of nerves in the body. In particular, the parties have stipulated that step (d) of claim 3 requires controlling the performance of the MRI by using a T2-weighted sequence. (D.I. 99-1 at 15.)<sup>4</sup> With respect to claims 4 and 5, which depend

<sup>3</sup> See, e.g., Ex. 4, '360 patent 5:54-58 (Moseley's T2-weighted technique); *id.* at 13:9-11 (Haase's fat suppression technique); *id.* at 13:36-37 (Dixon's fat suppression technique); *id.* at 13:38-40 (Shuman's fat suppression technique); *id.* at 24:58-61 (Bydder's vessel suppression and T2-weighted technique).

<sup>4</sup> The parties, in the exhibit to the Joint Claim Construction Statement, stipulate that the language in claim 3 requiring "a combination of echo time and repetition time that exploits a characteristic spin-spin relaxation coefficient of peripheral nerves, cranial nerves numbers three through twelve, and autonomic nerves, wherein said spin-spin relaxation coefficient is substantially longer than that of other surrounding tissue" means using what is "commonly referred to as a T2-weighted sequence." (D.I. 99-1 at 15.)

1 on claim 3 (i.e., claims 4 and 5 incorporate all the steps from claim 3), those claims  
2 add limitations requiring “echo time” and “repetition time” to be above certain  
3 threshold values. The parties have stipulated that “echo time” (often abbreviated  
4 “TE”) refers to the time between an excitation pulse and the occurrence of a resultant  
5 echo signal; and “repetition time” (often abbreviated “TR”) refers to the time between  
6 successive applications of the same pulse sequence. (*Id.* at 14.)

### 7 C. The Hajnal Prior Art

8 Hajnal was published in 1991<sup>5</sup> in the *Journal of Computer Assisted*  
9 *Tomography* by a team of MRI scientists including Dr. Joseph Hajnal. (Ex. 1,  
10 Hajnal.) The article discusses MRI studies performed by this team using the basic  
11 MRI steps explained above (i.e., exposing a patient to magnetic and excitation fields,  
12 sensing the response of the patient’s tissue, and producing an image based on that  
13 response). Hajnal’s studies described in the article use several ways of controlling the  
14 MRI performance, including using a T2-weighted sequence, to image peripheral and  
15 cranial nerves. Figure 5 in Hajnal is an MR image generated with a T2-weighted  
16 sequence and it shows “clearly” the trigeminal nerve. (*Id.* at 7, fig.5 (“The higher  
17 resolution images [in fig.5] enable details such as the trigeminal nerve to be seen more  
18 clearly.”) Indeed, during prosecution of the ‘360 patent, the patent applicant  
19 acknowledged that, “as both the applicants and the Examiner recognize, the trigeminal  
20 nerve is fairly distinct in FIGURE 5 of Hajnal et al., apparently *having a conspicuity*  
21 *of at least 1.1* relative to the surrounding region.”<sup>6</sup> (JA113.)

22  
23  
24 <sup>5</sup> Under 35 U.S.C. §102(b), material is considered prior art if it was “described in a  
25 printed publication in this or a foreign country... more than one year prior to the date  
26 of the application for patent in the United States.” Hajnal is prior art under §102(b)  
27 because it was published in the January/February 1991 issue of the *Journal of*  
28 *Computer Assisted Tomography*, more than a year before the application for the ‘360  
patent. During prosecution of the ‘360 patent, the applicant did not dispute that  
Hajnal qualified as prior art.

<sup>6</sup> All emphases in quotations were added except where otherwise noted.

1           The trigeminal nerve (also known as cranial nerve 5) is one of the nerves  
2 recited in step (a) of claims 1 through 35. (Ex. 5, *Taber's Cyclopedic Medical*  
3 *Dictionary* at 463 (listing trigeminal nerve as cranial nerve 5); D.I. 114, Claim  
4 Construction Order at 10 (construing "a member of the group consisting of peripheral  
5 nerves, cranial nerves number three through twelve, and autonomic nerves" to include  
6 the nerves listed on page 463 of *Taber's Cyclopedic Medical Dictionary*).) During  
7 claim construction in this case, apparently to avoid anticipation by Hajnal,  
8 NeuroGrafix argued that claims 1 through 35 exclude certain portions of the  
9 trigeminal nerve and other cranial nerves. The Court rejected that argument because it  
10 is inconsistent with the plain language of the claims. (D.I. 114 at 9-10.)

## 11       **II. APPLICABLE LEGAL PRINCIPLES**

### 12           **A. Invalidity for Anticipation by Prior Art Reference**

13           An alleged invention must be new to meet the requirements of  
14 patentability. See *C.R. Bard, Inc. v. M3 Sys., Inc.*, 157 F.3d 1340, 1349 (Fed. Cir.  
15 1998). "A claim is anticipated [under 35 U.S.C. §102] and thus invalid if each and  
16 every [step] of a claim is found, expressly or inherently, in a single prior art  
17 reference." *Planet Bingo, LLC v. GameTech Int'l, Inc.*, 472 F.3d 1338, 1346 (Fed.  
18 Cir. 2006) (citing *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1379 (Fed. Cir.  
19 2003)).

20           "While anticipation is a question of fact, 'it may be decided on summary  
21 judgment if the record reveals no genuine dispute of material fact.'" *Leggett & Platt,*  
22 *Inc. v. VUTEk, Inc.*, 537 F.3d 1349, 1352 (Fed. Cir. 2008) (citing *Golden Bridge*  
23 *Tech., Inc. v. Nokia, Inc.*, 527 F.3d 1318, 1321 (Fed. Cir. 2008)); *SmithKline Beecham*  
24 *Corp. v. Apotex Corp.*, 403 F.3d 1331, 1343 (Fed. Cir. 2005) ("[W]ithout genuine  
25 factual disputes underlying the anticipation inquiry, the issue is ripe for judgment as a  
26 matter of law."). "[W]here a prior art reference plainly discloses a claim [step], the  
27 court may recognize and apply that teaching on summary judgment. ... In many  
28 patent cases expert testimony will not be necessary because the technology will be

1 easily understandable without the need for expert explanatory testimony.” *Advanced*  
2 *Tech. Materials, Inc. v. Praxair, Inc.*, 228 F. App’x 983, 985 (Fed. Cir. 2007); *see*  
3 *also Union Carbide Corp. v. Am. Can Co.*, 724 F.2d 1567, 1573 (Fed. Cir. 1984).

4 **B. Invalidity for Indefiniteness**

5 This Court has already held that many of the claims in the ‘360 patent are  
6 written in means- or step-plus-function format, subject to 35 U.S.C. §112, ¶6. (D.I.  
7 114 at 16-28.) As the Court also held, many of these claims are indefinite because the  
8 specification fails to disclose a corresponding structure or act (or algorithm in the case  
9 of the computer-implemented functions at issue here) for functions recited in the  
10 claims. (*Id.*) Indefinite claims are invalid as a matter of law. 35 U.S.C. §112, ¶2; *see*  
11 *also Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009) (“If  
12 the specification does not contain an adequate disclosure of the structure that  
13 corresponds to the claimed function, the patentee will have ‘failed to particularly point  
14 out and distinctly claim the invention as required by the second paragraph of section  
15 112,’ which renders the claim *invalid* for indefiniteness.”).

16 Because a dependent claim incorporates the limitations of the claims  
17 from which it depends, *see* 35 U.S.C. §112, ¶4, an indefinite limitation in one claim  
18 generally invalidates that claim’s dependent claims. *See, e.g., Blackboard*, 574 F.3d  
19 at 1382 (affirming finding “that the specification contained insufficient structure to  
20 support one of the means-plus-function limitations found in [independent] claim 1  
21 and, by incorporation, in dependent claims 2-35”).<sup>7</sup>

22  
23 <sup>7</sup> *See also Convolve, Inc. v. Dell, Inc.*, 2011 WL 31792, at \*24 (E.D. Tex. Jan. 5,  
24 2011) (“[C]laim 11 is indefinite under 35 U.S.C. §112 ¶2. Dependent claims 12 and  
25 13, which incorporate this limitation from claim 11, are also indefinite.”); *Grantley*  
26 *Patent Holdings, Ltd. v. Clear Channel Commc’ns, Inc.*, 2008 WL 5781056, at \*4  
27 (E.D. Tex. Mar. 7, 2008) (“Having found that independent claims 1 and 5 ... are  
28 invalid, dependent claims 2, 3, 4, 6, and 7 ... are also invalid because these claims  
‘incorporate by reference all the limitations’ of their respective invalid base claims,  
*see* 35 U.S.C. §112 ¶4, and none of these dependent claims recite any additional  
structure.”); *Absolute Software, Inc. v. Stealth Signal, Inc.*, 2008 WL 6745389, at \*39,

### III. ARGUMENT

#### A. Claims 3, 4, and 5 Are Anticipated by Hajnal

The following subsections discuss steps (a) through (e) in claim 3 and the limitations in claims 4 and 5. The tables in each of the subsections demonstrate on a limitation-by-limitation basis that Hajnal discloses each and every step of claims 3, 4, and 5. Hajnal therefore renders those claims invalid for anticipation. *Planet Bingo*, 472 F.3d at 1346 (“A claim is anticipated [under 35 U.S.C. §102] and thus invalid if each and every [step] of a claim is found, expressly or inherently, in a single prior art reference.”).

##### 1. Hajnal discloses step (a) of claim 3

| Claim Language |   | Hajnal Disclosure  |
|----------------|---|--|
| (a)[i]         | exposing an in vivo region of a subject to a magnetic polarizing field, | Each of the MR experiments described in Hajnal involved exposing a live (in vivo), human volunteer to a main magnet having a 0.15 tesla magnetic field, as well as several gradient magnetic fields. (Ex. 1, Hajnal at 10 (“The MR system used in these studies...is based on a cryomagnet...operated at 0.15 T.”); <i>id.</i> at 1-2 (“[S]patially varying magnetic fields are used for slice selection and spatial encoding in all MR images.”); <i>id.</i> at 7, fig.5 (MR images of “normal volunteer male”).) |
| (a)[ii]        | the in vivo region including non-neural tissue and a nerve,             | Figure 5 shows a region of a human head that includes non-neural tissue and nerve tissue. (Ex. 1, Hajnal at 11 (“The higher resolution images [in fig.5] enable details such as the trigeminal nerve to be seen more clearly.”).)  |

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\*43 (S.D. Tex. Feb. 8, 2008).

|          | Claim Language   | Hajnal Disclosure   |
|----------|--|---|
| (a)[iii] | the nerve being a member of the group consisting of peripheral nerves, cranial nerves numbers three through twelve, and autonomic nerves | Figure 5 in Hajnal shows the trigeminal nerve, which is cranial nerve 5. (Ex. 1, Hajnal at 11 (“The higher resolution images [in fig.5] enable details such as the trigeminal nerve to be seen more clearly.”); Ex. 5, <i>Taber’s Cyclopedic Medical Dictionary</i> at 463 (listing trigeminal nerve as cranial nerve 5); D.I. 114, Claim Construction Order at 9 (construing “a member of the group consisting of peripheral nerves, cranial nerves number three though twelve, and autonomic nerves” to include cranial nerve 5 as listed on page 463 of <i>Taber’s Cyclopedic Medical Dictionary</i> ).) |

The ‘360 patent (which describes the prior art in the “Background of the Invention” section) and NeuroGrafix’s positions in this case show that, before the ‘360 patent, MRI had always used step (a). (Stated differently, process step (a) is inherent in basic MRI). For instance, the ‘360 patent explains that MRI has always involved exposing tissue to a polarizing magnetic field. (‘360 patent, 2:5-7 (“By way of introduction, MRI involves the exposure of tissue to a variety of different magnetic... fields.”).) And NeuroGrafix’s infringement contention regarding step (a) is based on NeuroGrafix’s assertion that “the Accused Instrumentalities have **conventional** MRI functionality, which **requires** exposure of a sample to a magnetic polarizing field.” (Ex. 6, NeuroGrafix Infringement Contention Chart at 8.) Dr. Filler also confirmed that “you always expose a region of the subject to a magnetic polarizing field when you use an MRI machine.” (Ex. 7, Filler Dep. at 169:1-4.) Thus, under NeuroGrafix’s view, step (a) is met when someone uses MRI to image a region of a living subject that includes one of the recited peripheral, cranial, or autonomic nerves – and there can be no legitimate dispute that Hajnal used MRI to image a region in a living subject that included the trigeminal nerve (cranial nerve 5).



2. Hajnal discloses step (b) of claim 3

|     | Claim Language   | Hajnal Disclosure   |
|-----|--|---|
| (b) | exposing the in vivo region to an electromagnetic excitation field | Each of the experiments described in Hajnal involved exposing the in vivo region to an electromagnetic excitation field. Figure 2 shows the basic pulse sequence used in Hajnal's experiments, which includes two electromagnetic excitation pulses, a "90° slice selective pulse followed by a nonselective 180° pulse." (Ex. 1, Hajnal at 2, fig.2; <i>id.</i> at 10 ("Two to four excitations were used in each study.").) |

The '360 patent and NeuroGrafix's positions in this case show that, before the '360 patent, MRI had always used step (b). For instance, the '360 patent explains that MRI has always involved exposing tissue to an electromagnetic excitation field. (Ex. 4, '360 patent, 2:5-7 ("By way of introduction, MRI involves the exposure of tissue to a variety of different ... radio-frequency (rf) electromagnetic fields.").) And NeuroGrafix's infringement contention regarding step (b) is based on NeuroGrafix's assertion that "the Accused Instrumentalities have *conventional* MRI functionality, *which includes* exposure of a sample to an electromagnetic excitation field." (Ex. 6, NeuroGrafix Infringement Contention Chart at 9.) Dr. Filler also confirmed that "you always expose the region [of the subject] to an electromagnetic excitation field when you use an MRI machine." (Ex. 7, Filler Dep. at 169:5-8.) Thus, under NeuroGrafix's own view, step (b) is met when someone uses MRI to image a region of a living subject that includes one of the recited nerves – and there can be no legitimate dispute that Hajnal used MRI to image a region of tissue in a living subject that included the trigeminal nerve (i.e., cranial nerve 5).

### 3. Hajnal discloses step (c) of claim 3

|     | Claim Language  | Hajnal Disclosure  |
|-----|---|--|
| (c) | sensing a resonant response of the in vivo region to the polarizing and excitation fields and producing an output indicative of the resonant response | The MR images in Hajnal, like all MR images, were made by sensing the “echo” (i.e., the resonant response of the in vivo region) resulting from the magnetic polarizing field and the excitation pulses, and then producing an output indicative of that echo response. For example, Hajnal used “quasispherical head receiver coils” to sense the echo response (Ex. 1, Hajnal at 10), and the MR images in Hajnal were generated from that response. |

The ‘360 patent and NeuroGrafix’s positions in this case also show that, before the ‘360 patent, MRI had always used step (c). For instance, the ‘360 patent notes that MRI has always involved sensing a tissue’s resonant response to the polarizing and excitation fields to produce an image. (Ex. 4, ‘360 patent, 2:5-9 (“By way of introduction, MRI involves the exposure of tissue to a variety of different magnetic and radio-frequency (rf) electromagnetic fields. The response of the specimen’s atomic nuclei to the fields is then processed to produce an image of the specimen.”).) And Dr. Filler confirmed that “you also sense the resonant response of the in vivo image to the polarizing and excitation fields when you use an MRI machine,” and that “the whole point of the use of an MRI machine would be to produce some output indicative of that resonant response.” (Ex. 7, Filler Dep. at 169:9-16; *see also* Ex. 8, Filler Opening Expert Report ¶37 (“The detection of the RF output from the proton can be called the ‘sensing of the resonant response.’”).) Thus, under NeuroGrafix’s own view, step (c) is met when someone uses MRI to image a region of a living subject that includes one of the recited nerves – and there can be no legitimate dispute that Hajnal used MRI to image a region of tissue in a living subject that included the trigeminal nerve (cranial nerve 5).



4. Hajnal discloses step (d) of claim 3

|         | Claim Language  | Hajnal Disclosure  |
|---------|---|--|
| (d)[i]  | controlling the performance of the steps (a), (b), and (c) to enhance, in the output produced, the selectivity of said nerve, | <p>Hajnal discloses several of the very same methods disclosed and claimed in the '360 patent for controlling the performance of steps (a), (b), and (c) to enhance the selectivity of the nerve.</p> <p>As one example, Hajnal controls MRI performance by using TE and TR values that result in what is referred to as T2 weighting. (Ex. 1, Hajnal at 9 ("Anisotropically restricted diffusion pulse sequences [which were used in Hajnal] are usually heavily T2 weighted by virtue of their long values of TE."); <i>see also</i> D.I. 99-1 at 15 (stipulating that the combination of echo time (TE) and repetition time (TR) referred to in step (d) is commonly called "T2-weighted").) Indeed, claims 4 and 5 specify values of TE and TR that would satisfy claim 3, and Hajnal selected TE and TR values that satisfy those numerical limitations. (<i>Compare</i> Ex. 1, Hajnal at 6, 7 &amp; fig. 5 (TR = 1,500 ms; TE = 130 ms), <i>with</i> '360 patent, claims 4 &amp; 5 (TR &gt; 1,000 ms; TE &gt; 60 ms).)</p> |
| (d)[ii] | while the nerve is living in the in vivo region of the subject,   | Figure 5 in Hajnal shows the trigeminal nerve in a "normal volunteer male." (Ex. 1, Hajnal at 7, fig.5.)   |

|          | Claim Language  | Hajnal Disclosure                       |
|----------|---|---|
| (d)[iii] | said step of controlling the performance of steps (a), (b), and (c) including selecting a combination of echo time and repetition time that exploits a characteristic spin-spin relaxation coefficient of peripheral nerves, cranial nerves numbers three through twelve, and autonomic nerves, wherein said spin-spin relaxation coefficient is substantially longer than that of other surrounding tissue | See disclosure above under step (d)[i]. |

The '360 patent and NeuroGrafix's positions in this case also show that, before the '360 patent, MRI had always used pulse sequences to control steps (a), (b), and (c) and that T2 weighting was not new. The '360 patent explains that there were many prior art pulse sequences, including ones that used T2 weighting. (Ex. 4, '360 patent 5:54-58 (Moseley's T2-weighted technique); *id.* at 24:58-61 (Bydder's T2-weighted technique).).<sup>8</sup> Yet the basis for NeuroGrafix's infringement contention on this limitation is simply that Siemens' equipment can be used to enhance the appearance of nerves (i.e., "enhance the selectivity") because Siemens' equipment (like virtually every prior art MRI device) "can be controlled by using a particular pulse sequence" and because (also like virtually every prior art MRI device) "the time at which the response is sensed [i.e., TE] can be controlled." (Ex. 6, NeuroGrafix Infringement Contention Chart at 10.) Thus, under NeuroGrafix's own view, element

<sup>8</sup> Dr. Filler admits the inventors of the '360 patent did not invent T2 weighting. (Ex. 7, Filler Dep. at 55:14-16.)

(d) is met when someone selects a pulse sequence or TE that enhances the appearance of nerve tissue, and there can be no legitimate dispute that Hajnal selected the very same TE (and TR) parameter claimed in the '360 patent.

### 5. Hajnal discloses step (e) of claim 3

| Claim Language |  | Hajnal Disclosure   |
|----------------|--|---|
| (e)[i]         | processing the output to generate a data set describing the shape and position of said nerve,  | Hajnal processed the resonant response output to generate a data set, which is shown in Hajnal's MR images. The MR images show the shape and position of various nerve fibres, including at least the trigeminal nerve. ( <i>See, e.g.</i> , Ex. 1, Hajnal at 11 (referencing fig.5) (showing trigeminal nerve); <i>id.</i> at 2 ("The anatomical basis of ARD has been extended to include consideration of the size and direction of a variety of fibre tracts.").) |
| (e)[ii]        | said data set distinguishing said nerve from non-neural tissue, in the in vivo region to provide a conspicuity of the nerve that is at least 1.1 times that of the non-neural tissue | Figure 5 shows the trigeminal nerve (cranial nerve 5) clearly distinguished from other tissue in the image. (Ex. 1, Hajnal at 11 ("The higher resolution images [in fig.5] enable details such as the trigeminal nerve to be seen more clearly.")) As explained below, the applicant for the '360 patent admitted to the Patent Office that the trigeminal nerve was shown with a conspicuity of at least 1.1 compared to surrounding tissue in Hajnal.               |
| (e)[iii]       | without the use of neural contrast agents  | Hajnal does not disclose the use of contrast agents.  |

The '360 patent and NeuroGrafix's positions in this case also confirm that step (e) was not new, and that before the '360 patent MR imaging had always involved a processing step to generate an image. For instance, the '360 patent explains that MRI has always involved processing the output from the resonant response to generate an image of the tissue. (Ex. 4, '360 patent, 2:5-9 ("By way of introduction, MRI involves the exposure of tissue to a variety of different magnetic and radio-frequency (rf) electromagnetic fields. The response of the specimen's

1 atomic nuclei to the fields is then processed to produce an image of the specimen.”.)  
2 And Dr. Filler confirmed that “any MRI machine, the use of it [before the ‘360  
3 patent], necessarily processed the output to generate a data set.” (Ex. 7, Filler Dep. at  
4 177:10-18.)

5 With respect to step (e)[ii], during prosecution of the ‘360 patent the  
6 applicant admitted to the Patent Office that Figure 5 of Hajnal shows the trigeminal  
7 nerve with a conspicuity of at least 1.1 compared to the surrounding tissue: “As both  
8 the applicant and the Examiner recognize, the trigeminal nerve is fairly distinct in  
9 FIGURE 5 of Hajnal et al., apparently *having a conspicuity of at least 1.1 relative to*  
10 *the surrounding region.*” (JA113.) Having acknowledged to the Patent Office  
11 during prosecution of the patent that Hajnal met this limitation in the claims,  
12 NeuroGrafix cannot now argue otherwise to avoid invalidity in light of Hajnal. *In re*  
13 *Reuning*, 276 F. App’x 983, 986 (Fed. Cir. 2008) (“Having acknowledged that certain  
14 claimed elements are taught by the prior art, [applicant] cannot now defeat an  
15 obviousness rejection by asserting that the cited references fail to teach or suggest  
16 these elements.”).

17 Thus, under NeuroGrafix’s own view, MRI has always involved  
18 processing a resonant response output to generate an image, and Hajnal processed the  
19 output to generate an image showing the trigeminal nerve (cranial nerve 5) with a  
20 conspicuity of 1.1 compared to the surrounding tissue.<sup>9</sup>

#### 21 **6. Hajnal discloses the step recited in claim 4**

22 Claim 4 depends from claim 3, and adds a further limitation to step (d)  
23 from claim 3 requiring that “the step of selecting said combination of echo time and  
24

25 <sup>9</sup> As discussed with the Court during the May 26, 2011 status conference, and as  
26 envisioned by the Court’s June 10, 2011 scheduling order, Siemens does still intend to  
27 move for summary judgment that the phrase “conspicuity of 1.1” is indefinite under  
28 35 U.S.C. §112, ¶2. But no matter how that phrase is construed, the patentee cannot  
escape the admission to the Patent Office that Figure 5 of Hajnal meets the  
“conspicuity of 1.1” requirement.

1 repetition time includes *selection of an echo time that is greater than 60 milliseconds*  
2 to enhance the distinction of said nerve from non-neural tissue in the in vivo region.”  
3 Figure 5 of Hajnal was made using an echo time (TE) of 130 milliseconds, and there  
4 can be no legitimate dispute that Hajnal discloses the step recited in claim 4. (Ex. 1,  
5 Hajnal at 6, 7 & fig.5.)

6 **7. Hajnal discloses the step recited in claim 5**

7  
8 Claim 5 depends from claim 4 (and, in turn, claim 3), and adds a further  
9 limitation requiring “the step of repeating said step of exposing the in vivo region to  
10 an excitation field after a *repetition time that is greater than one second* to enhance  
11 the distinction of said nerve from the non-neural tissue in the in vivo region.” Figure  
12 5 of Hajnal was made using a repetition time (TR) of 1.5 seconds (1,500  
13 milliseconds), and there can be no legitimate dispute that Hajnal discloses the step  
14 recited in claim 5. (Ex. 1, Hajnal at 6, 7 & fig.5.)

15 **B. Asserted Claims 36, 37, 39-44, 46, 47, 49, 50, 55, 56, 58, 59, 61, and 62**  
16 **Are Indefinite and Therefore Invalid as a Matter of Law**

17 **1. Partial Summary Judgment of Invalidity Should be Granted**  
18 **for Claims the Court Already Found Indefinite**

19 The Court has already held that claims 36, 39, 46, 49, 55, 58, and 61 of  
20 the ‘360 patent are indefinite because the specification of the ‘360 patent fails to  
21 disclose sufficient acts or structures (i.e., algorithms) that correspond to the computer-  
22 implemented functions recited in those claims. (D.I. 114 at 23-29.) Indefinite claims  
23 are invalid as a matter of law under 35 U.S.C. §112, ¶2, and Siemens therefore  
24 respectfully requests that the Court grant partial summary judgment that these claims  
25 are invalid. *See, e.g., Blackboard*, 574 F.3d at 1385-86; *Halliburton Energy Servs.*,  
26 514 F.3d at 1256.  
27  
28

1                   **2. Partial Summary Judgment of Invalidity Should Also be**  
2                   **Granted for Claims that Depend on the Claims the Court**  
3                   **Already Found Indefinite**

4                   The claims that depend from indefinite claims 37, 40-44, 47, 50, 56, 59,  
5                   and 62 necessarily incorporate the same indefinite limitations. These dependent  
6                   claims are therefore also indefinite, and Siemens requests the Court grant partial  
7                   summary judgment that these claims are invalid under 35 U.S.C. §112, ¶2. *See, e.g.,*  
8                   *Blackboard*, 574 F.3d at 1382; *Grantley Patent Holdings*., 2008 WL 5781056, at \*4.

9                   Recognizing that the legal effect of the Court's claim construction order  
10                  is a finding of invalidity for all of these independent and dependent claims,  
11                  NeuroGrafix does not oppose partial summary judgment of invalidity for the  
12                  apparatus claims in this set of claims (i.e., claims 55, 56, 58, 59, 61, and 62). (Ex. 2,  
13                  5/18/11 Weiss to McEldowney letter.) Although NeuroGrafix acknowledges that the  
14                  Court's claim construction has the same legal effect on the method claims in this set  
15                  (claims 36, 37, 39-44, 47, and 50), NeuroGrafix refuses to accept that inevitable  
16                  result. Instead, NeuroGrafix apparently wishes to reargue claim construction and to  
17                  have the Court change its ruling concerning those method claims. Although the Court  
18                  issued its claim construction order over two months ago, NeuroGrafix still has not  
19                  filed a motion for reconsideration, nor has it set forth any legitimate basis supporting  
20                  such a motion. If and when NeuroGrafix makes such a motion, Siemens will oppose  
21                  it on the merits, as well as on the ground that NeuroGrafix made or could have made  
22                  whatever arguments it now relies on and cannot satisfy the standard for  
23                  reconsideration, which is not a chance at a "do-over." (Ex. 9, 5/12/11 McEldowney to  
24                  Weiss letter; Ex. 2, 5/18/11 Weiss to McEldowney letter; Ex. 3, 5/24/11 Weiss to  
25                  McEldowney email.) Under the Court's May 5, 2011 claim construction order, claims  
26                  36, 37, 39-44, 46, 47, 49, 50, 55, 56, 58, 59, 61, and 62 are indefinite, and Siemens  
27                  requests the Court enter partial summary judgment of invalidity on these claims.  
28

1 **IV. CONCLUSION**

2 For these reasons, Siemens respectfully requests the Court grant partial  
3 summary judgment of invalidity dismissing claims 3, 4, 5, 36, 37, 39, 40, 41, 42, 43,  
4 44, 46, 47, 49, 50, 55, 56, 58, 59, 61, and 62.

5  
6 Respectfully submitted,

7 DATED: July 15, 2011

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**CERTIFICATE OF SERVICE**

I hereby certify that on July 15, 2011, a copy of the foregoing  
MEMORANDUM IN SUPPORT OF SIEMENS' MOTION FOR PARTIAL  
SUMMARY JUDGMENT OF INVALIDITY REGARDING CLAIMS 3-5, 36, 37,  
39-44, 46, 47, 49, 50, 55, 56, 58, 59, 61, AND 62 IN U.S. PATENT NO. 5,560,360 IN  
LIGHT OF CLAIM CONSTRUCTION ORDER was served upon counsel of record  
for Plaintiffs registered with the Court's CM/ECF system.

/s/Sean M. McEldowney